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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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01/05/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/807,949	Applicant(s) ZHANG, TONG	
	Examiner SATH V. PERUNGAVOOR	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

[1] A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2008 has been entered.

Response to Arguments/Amendments

[2] Presented arguments have been fully considered, but are rendered moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

[3] Claims 36-48 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material)

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. The claims recite process steps without being tied to an apparatus/system, such as a computer or processor.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

[4] Claims 23, 25, 26, 28-33, 36, 38, 39 and 41-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Toklu et al. (“Toklu”) [US 6,549,643 B1].

Regarding claim 23, Toklu meets the claim limitations, as follows:

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A key-frame extraction system [fig. 1], comprising: video frame extractor (*i.e.* 12) that extracts each of a series of video frames (*i.e. segments*) from a video [fig. 1; col. 5, ll. 39-44]; a set of frame analyzers (*i.e.* 15, 16, 17) that obtain the series of video frames in parallel from the video frame extractor (*i.e.* 12), each frame analyzer selecting a corresponding set of candidate key-frames from the series by performing a different corresponding analysis on each video frame in the series such that the analyses are selected to detect multiple types of meaningful content in the video [fig. 1; col. 5, l. 61-col. 6, l. 7]; key-frame selector (*i.e.* 18) that obtains the corresponding candidate key-frames from each frame analyzer (*i.e.* 15, 16, 17) and arranges the candidate key-frames into a set of clusters (*i.e. segments*) and that selects one of the candidate key-frames (*i.e. reference key frame*) from each cluster (*i.e. segment*) as a key-frame for the video [fig. 4; col. 13, ll. 60-66].

Regarding claim 25, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the key-frame selector (*i.e.* 18) selects the key-frames by determining an importance score (*i.e. object motion*) for each candidate key-frame in each cluster (*i.e. segment*) [fig. 4; col. 13, ll. 60-66].

Regarding claim 26, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 25, wherein the key-frame selector (*i.e.* 18) determines the importance scores (*i.e. object motion*) by determining an image content (*i.e. region segmentation*) of each candidate key-frame [fig. 4; col. 13, ll. 37-40].

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Regarding claim 28, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the key-frame selector (*i.e.* 18) selects the key-frames by determining an image quality (*i.e.* *object motion*) for each candidate key-frame in each cluster (*i.e.* *segment*) [fig. 4; col. 13, ll. 60-66].

Regarding claim 29, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the frame analyzers include a color histogram analyzer (*i.e.* 17) [fig. 1].

Regarding claim 30, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the frame analyzers include a color layout (*i.e.* *distribution or histogram*) analyzer (*i.e.* 17) [fig. 1].

Regarding claim 31, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the frame analyzers include a fast camera motion detector (*i.e.* 15) [fig. 1].

Regarding claim 32, Toklu meets the claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the frame analyzers include a camera motion tracker (*i.e.* 15) [fig. 1].

Regarding claim 33, Toklu meets the claim limitations, as follows:

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The key-frame extraction system of claim 23, wherein the frame analyzers include an object motion analyzer (*i.e.* 15) [fig. 1].

Regarding claims 36, 38, 39 and 41-46, all claimed limitations are set forth and rejected as per discussion for claims 23, 25, 26 and 28-33.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[5] Claims 24, 27, 34, 37, 40 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toklu in view of Wu et al. (“Wu”) [US 2003/0068087 A1].

Regarding claim 24, Toklu meets the claim limitations as set forth in claim 23.

Toklu does not explicitly disclose the following claim limitations:

The key-frame extraction system of claim 23, further comprising an audio event detector that obtains the series of video frames from the video frame extractor and that selects a corresponding set of candidate key-frames from the series by performing an audio analysis on each video frame in the series and that provides the corresponding set of candidate key-frames to the key-frame selector.

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However, in the same field of endeavor Wu discloses the deficient claim limitations, as follows:

The key-frame extraction system of claim 23, further comprising an audio event detector (*i.e.* 501) that obtains the series of video frames from the video frame extractor (*i.e.* 40) and that selects a corresponding set of candidate key-frames (*i.e.* frames with human sounds) from the series by performing an audio analysis on each video frame in the series and that provides the corresponding set of candidate key-frames (*i.e.* frames with human sounds) to the key-frame selector (*i.e.* 503) [paras. 0027 and 0041].

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Toklu with Wu to include audio analysis the motivation being to reduce the amount of image processing performed on the video data [para. 0026].

Regarding claim 27, Toklu meets the claim limitations as set forth in claim 25.

Toklu does not explicitly disclose the following claim limitations:

The key-frame extraction system of claim 25, wherein the key-frame selector determines the importance scores by determining an audio content of each candidate key-frame.

However, in the same field of endeavor Wu discloses the deficient claim limitations, as follows:

The key-frame extraction system of claim 25, wherein the key-frame selector (*i.e.* 503) determines the importance scores (*i.e.* whether or not to process the frame) by determining

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an audio content (*i.e. human sounds*) of each candidate key-frame [paras. 0027 and 0041].

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Toklu with Wu to include audio analysis the motivation being to reduce the amount of image processing performed on the video data [para. 0026].

Regarding claim 34, Toklu meets the claim limitations as set forth in claim 23.

Toklu does not explicitly disclose the following claim limitations:

The key-frame extraction system of claim 23, wherein the frame analyzers include a human face detector.

However, in the same field of endeavor Wu discloses the deficient claim limitations, as follows:

The key-frame extraction system of claim 23, wherein the frame analyzers include a human face detector (*i.e. 503*) [para. 0031].

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Toklu with Wu to include face detection the motivation being human faces are most important users of video content [para. 0005].

Regarding claims 37, 40 and 47, all claimed limitations are set forth and rejected as per discussion for claims 24, 27 and 34.

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[6] Claims 35 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toklu in view of Dimitrova et al. (“Dimitrova”) [US 6,125,229].

Regarding claim 35, Toklu meets the claim limitations as set forth in claim 23.

Toklu does not explicitly disclose the following claim limitations:

The key-frame extraction system of claim 23, further comprising a user interface for displaying a set of video frames in the video previous to each key-frame and a set of video frames in the video subsequent to each key-frame and for obtaining a user selection of one or more of the video frames

However, in the same field of endeavor Dimitrova discloses the deficient claim limitations, as follows:

The key-frame extraction system of claim 23, further comprising a user interface for displaying a set of video frames in the video previous to each key-frame and a set of video frames in the video subsequent to each key-frame and for obtaining a user selection of one or more of the video frames [*col. 12, ll. 59-67*]

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Toklu with Dimitrova and include user input the reasoning being that user's desire should be taken into account.

Regarding claim 48, all claimed limitations are set forth and rejected as per discussion for claim 35.

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Contact Information

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Matthew C. Bella whose telephone number is (571) 272-7778, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: January 1, 2009

/Sath V. Perungavoor/

Sath V. Perungavoor

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